BORODʹKO, Yu.G.; SYRKIN, Ya.K.

Raman scattering line intensities of $CCl_4$, $SiCl_4$, and $GeCl_4$ mixed with benzene, p-xylene, and cyclohexane. Opt. i spektr. 9 no.5: 677-679 N [illegible]. (MIRA 13:11)

(Carbon tetrachloride--Spectra)
(Silicon chloride--Spectra)
(Germanium chloride--Spectra)

S/020/60/131/04/042/073
B004/B125

AUTHORS: Borod'ko, Yu. G., Syrkin, Ya. K., Corresponding Member AS USSR

TITLE: The Dependence of the Frequencies and Intensities of the Raman Spectrum Lines of Mixtures of Ketone With Chloroform on Temperature and Concentration

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol 131, Nr 4, pp 868 - 871 (USSR)

TEXT: The scope of this paper was the investigation of the interaction between ketones and chloroform in the formation of molecular compounds. The intensity of the Raman spectrum lines was measured by means of an ISP-51 spectrograph with photoelectric recording. Investigated were: acetone, acetophenone and chloroform dissolved in hexane; as well as acetone, acetophenone, diethyl ketone, and benzophenone dissolved in chloroform at temperatures between $-90^{\circ}$ and $+30^{\circ}$. Tables 1 and 2 give the integral intensities of the lines, where the intensity of the individual substance with respect to 1 mol at $+30^{\circ}$ is set equal to 100. The intensity of the C=O and C-H lines increases in the system ketone + chloroform and decreases in solutions of these substances in hexane. The intensity of the C-Cl line remains practically constant (Fig 1). The intermolecular interaction is accordingly manifested above all in the C=O bond of the ketone and the C-H bond

of the chloroform. The formation of the hydrogen bonds is complicated by the dimerization of the ketones, which associate to quadrupoles. Figure 2 shows the dependence on temperature of the intensity of the lines of the carbonyl group in liquid acetone, in a solution of acetone in hexane, and in a mixture of acetone and chloroform. The authors calculated the equilibrium constant for the molecular acetone-chloroform compound at 301, 263, and 243°K and found a value for the enthalpy of about 3350 cal/mol. This value may be found among the data given in references 6 and 7. The free energy of formation of this molecular compound is equal to 910 cal/mol. This low value explains the instability of the molecular compound at higher temperatures. There are 2 figures, 2 tables, and 7 references, 3 of which are Soviet.

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii im. M. V. Lomonosova (Moscow Institute of Fine Chemical Technology imeni M. V. Lomonosov)

SUBMITTED: December 30, 1959

BOROD'KO, Yu.G.; SYRKIN, Ya.K.

Intensity of the infrared absorption of the carbonyl bond in sydnones and tropone, and its polarity. Dokl. AN SSSR 134 no.5:1127-1130 O '60. (MIRA 13:10)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii im. M.V. Lomonosova. 2.Chlen-korrespondent AN SSSR (for Syrkin).
(Sydnones) (Cycloheptatrienone) (Carbonyl group--Spectra)

S/192/61/002/004/004/004
D217/D306

54130

AUTHORS: Borod'ko, Yu. G. and Syrkin, Ya. K.

TITLE: Intermolecular reaction of $Cl_2$ and $I_2$ with some organic compounds

PERIODICAL: Zhurnal structurnoy khimii, v. 2, no. 4, 1961, 480 - 483

TEXT: The authors studied the formation of intermolecular complexes between molecular chlorine and iodine and certain organic compounds with potentail donor properties, by examining the infra-red spectra of the products. The spectra were taken on a U.R. - 10 spectrophotometer. The interaction of chlorine with various substituted benzenes has been studied by this method. As Mulliken has pointed out the interaction is of an acceptor-donor character, the energy of which depends on the integral overlap between the highest full orbital of the donor and the lowest vacant orbiatal of the acceptor. This led Mulliken to

Intermolecular reaction...

conclude that the most probable structure for the benzene-halogen complexes would be where the halogen molecule is parallel to the plane of the benzene ring, as this would allow for a maximum overlap of orbitals. In complexes of such geometry the chlorine molecule has a center of symmetry; therefore, the Cl-Cl vibration would not absorb in the infrared. The experiment showed that $I_2$, $Cl_2$ and $Ph_2$ absorbed intensively in solutions of benzene and its derivatives. Consequently the halogen-benzene complexes can be represented as having the halogen molecule perpendicularly to the plane of the benzene ring along its axis of symmetry, with the atoms of the halogen molecule being non-equivalent and thus absorbing in the infrared. Complex formation changes the symmetry and shape of the molecular orbital to achieve overlap with the donor orbitals which alters the frequency of absorption of the Cl-Cl bond. This distortion depends on the electron density in the ring; the greater the availability of electrons in the donor, the greater is the frequency shift in the complex. This is borne out by the re-

[redacted]termolecular reaction...

[redacted]sults quoted. Molecular $Cl_2$ absorbs at 557.5 $cm^{-1}$ in a gaseous state. The absorption in solution is: in trichlorobenzene, 540 $cm^{-1}$; [redacted] benzene, 530 $cm^{-1}$; in toluene, 527 $cm^{-1}$; and in p-eylene, [redacted]4 $cm^{-1}$. The spectra were taken in freshly prepared solutions at 10 - 15°C. On standing the p-xylene solution [redacted]egan to show absorption at 550 $cm^{-1}$ indicating chlorination of the solvent molecules. Further supporting evidence is given by X-ray studies of crystalline forms of the additive complexes. Double bonds can also act as donors. An infrared spectrum of iodine in freshly prepared cyclohexene solution showed a new bond at 1624 $cm^{-1}$, which is evidently due to the double bond. Shift of absorption from 1650 $cm^{-1}$ to 1624 $cm^{-1}$ probab[redacted] indicates a [redacted] complex formation. Halogens also interact with polar molecules containing N and [redacted] atoms, which can donate their lone pair of electrons. Donor-acceptor interaction brings dipole in the halogens, which bonds the halogen to the donor. In the spectrum of the system $I_2$ - Tetrahydrofuran (THF) splitting of the bands 915 $cm^{-1}$ and 1072 $cm^{-1}$ is found. The bands are due

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to the symmetrical and unsymmetrical vibrations respectively of the group C-O-C. The new bands at 890 $cm^{-1}$ and 1053 $cm^{-1}$ correspond to the same vibration in the THF-$I_2$ addition complex. The $I_2$ molecule is arranged along the bisector of the valency angle C-O-C. Evidently similar is the character of the interaction in the system Tropone-$I_2$. The spectrum of this system contains new bands at frequencies 1571 $cm^{-1}$ and 1631 $cm^{-1}$, besides the ordinary tropone bands at 1644 $cm^{-1}$ and 1599 $cm^{-1}$. The intensity of the new bands increases with increasing iodine concentration, whereas the effect is the reverse on the standard tropone bands. Lowering of the temperature has an analogous effect. The interaction is localized on the oxygen. From the temperature-dependence of the intensity of the carbonyl peaks over the range 4 - 60°C the enthalpy, entropy and the free energy of the molecular complex were evaluated. [Abstractor's note: Method of evaluation not given.] the values $\Delta H$ = -6.6 Kcal/mole, $\Delta S$ = -16.5 E.U. and $\Delta F$ = 1.7 kcal/mole.

Card 4/5

Intermolecular reaction...

At a given temperature in solution there exists an equilibrium between tropone and iodine and the molecular complex, which accounts for the presence of peaks characteristic to both free tropone and tropone-iodine complex. There are 4 figures and 23 references: 4 Soviet-bloc and 19 non-Soviet-bloc. The references to the 4 most recent English-language publications read as follows; J.A.C.S. 81, 823 (1959), Proq. Theoret. Phys. 22, 313 (1959), Acta. Chem. Scand. 13, 1781, (1959), and Helv. Chim. Acta. 40, 957 (1959).

ASSOCIATION: Institut tonkoy khimicheskoy tekhnologii im M.V. Lomonosova (Institute of Fine Chemical Technology im. M.V. Lomonosov)

SUBMITTED: April 28, 1961

Card 5/5

BOROD'KO, Yu.G.; SYRKIN, Ya.K.

Resonance splitting of the carbonyl band of sydnones in the infrared spectrum. Opt.i spektr. 11 no.4:482-485 O '61. (MIRA 14:10)

(Carbonyls--Spectra) (Sydnones--Spectra)

BORODʹKO, Yu.G.; SYRKIN, Ya.K.

Molecular compounds of diphenylcyclopropenone, tropone and benzophenone with hydrogen chloride. Dokl. AN SSSR 136 no.6:1335-1338 F '61. (MIRA 14:3)

1. Chlen-korrespondent AN SSSR.
(Cyclopropenone)
(Cycloheptatrienone)(Benzophenone)
(Hydrochloric acid).

BOROD'KO, Yu.G.; SYRKIN, Ya.K.

Intermolecular interaction between tetrahydrofuran and hydrogen chloride. Dokl. AN SSSR 139 no.1:102-105 Jl '61. (MIRA 14:7)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii im. M.V. Lomonosova. 2. Chlen-korrespondent AN SSSR (for Syrkin).
(Furan) (Hydrochloric acid)

BORODNYUK, N.A.

Experience with prolonged preservation of streptococcal hyaluronidase.
Zhur.mikrobiol.epid. i immun. 30 no.2:127-128 F '59.
(MIRA 12:3)

1. Iz Instituta epidemiologii i mikrobiologii imeni Gamalei AMN SSSR.
(HYALURONIDASE,
streptococcal, prolonged preserv. (Rus))

BORODOVITSYN, I.I.

Cfeating sod covers on laterla spillways
Gidr. i mel. 4, no.9, 1952

BORODOVITSYN, Yu.A., inzh.; IDIATULLIN, N.S., inzh.; FILIN, V.A., inzh.

Investigating models of exhaust noise silencers for gas turbine plants. Sudostroenie 30 no.2:26-27 F '64. (MIRA 17:4)

534.152 : 535.417

8590. Measurement of the amplitude of vibration of piezoelectric crystals by an interference method. L. N. Bogomolovskaya and A. E. Salomonovich. *J. Tech. Phys., USSR*, 21, 221-4 (Feb., 1951) In *Russian*.

A Zeiss interference comparator was used for measuring the amplitude of the vibration of quartz crystals along the Y axis for frequencies of 75–160 kc/s. This comparator was a Michelson interferometer in which one of the mirrors served as the fixed polished surface of a wedge, the other polished surface of the wedge being the face of the quartz crystal under investigation; the wedge between the two surfaces was air filled. The wedge interference pattern obtained was viewed through an eyepiece fitted with a camera for photographing the pattern. Using this apparatus it was possible to graduate a control apparatus in absolute units in terms of the mechanical displacement of the faces of the piezo quartz crystal, and to establish a linear relation between the applied voltage and the mechanical displacement. The relation between the normal and tangential displacement of any face of the crystal could also be established.

W. Hurlbus

P. N. Lebedev Inst. Physics, Acad. Sci USSR.

BORODOVSKAYA, L. N.

USSR/Physics - Electron emission FD-1892

Card 1/1 Pub. 146-12/21

Author : Borodovskaya, L. N., and S. V. Lebedev

Title : Dependence of electrical conductivity and electron emission upon the energy of a metal in process of its being heated by a current of large density

Periodical : Zhur. eksp. i teor. fiz. 28, 96-110, January 1955

Abstract : During the heating of nickel conductors by a current of 60,000 to 5,000,000 amperes per square centimeter the authors observed a phenomenon of the same character as was observed earlier in wolfram by S. V. Lebedev and S. E. Khaykin (ibid., 26, 629, 1954 etc.). In the investigation of the dependence of the resistance R of the conductor upon the energy E introduced into it, they observed in the curve R = R (E) points of discontinuity whose positions in resistance and energy do not change with change in the density of the heating current (Ni, W, Au, constantan). Investigation of the emission showed that the anomalously large emission from nonruptured conductors can decrease although the rate of energy onset into the conductor exceeds the loss of energy at the temperature of fall in the case of stationary heating. The present data characterizing the rate of decrease of emission after disconnection of the heating current. 12 ref.

Institution: Physical Institute im. Lebedev, Acad. Sci, USSR

Submitted : August 1, 1953.

TURANOVA, Ye.N.; ANTONOVA, T.N.; BORODOVSKAYA, M.A.; LEVINA, F.A.; SHAMINA, M.S.

Trichomycin in the treatment of trichomoniasis in women. Vest. derm.i ven. 34 no.9:72-73 '60. (MIRA 13:11)

1. Iz TSentral'nogo nauchno-issledovatel'skogo kozhno-venerologicheskogo instituta (dir. - kand.med.nauk N.M. Turanov) Ministerstva zdravookhraneniya RSFSR, bol'nitsy imeni Korolenko (glavnyy vrach A.I. Pustovaya), 33-y gorodskoy bol'nitsy (glavnyy vrach P.V. Abashkina), I venerologicheskogo dispansera (glavnyy vrach V.P. Volkov).
(TRICHOMONIASIS) (ANTIBIOTICS) (VAGINA—DISEASES)

BORODOVSKIY, G.

Competition in the precision of measurement. Prof.-tekh. obr. 18 no.2:23 F '61. (MIRA 14:3)

1. Zaveduyushchiy Khar'kovskim oblastnym uchebno-metodicheskim kabinetom.
(Mensuration—Study and teaching)

IZVOZCHIKOV, V.A.; BORODOVSKIY, G.A.

Photoconducting lead oxide single crystals. Dokl.AN SSSR 145 no.6:1253-1254 Ag '62. (MIRA 15:8)

1. Leningradskiy gosudarstvennyy pedagogicheskiy institut im. A.I.Gertsena. Predstavleno akademikom A.N.Tereninym.
(Lead oxide crystals) (Photoconductivity)

BORODOVSKIY, M. S.

25665 IOFFE, I. G. i BORODOVSKIY, M. S.

Pusskie izobreteli--novatory tkatskoy tekhniki.
Tekstil. Prom--st', 1948, No. 6, s. 23-25.

SO: Letopis' Zhurnal'nykh Statey, No. 30, Moskva, 1948

BORODOVSKIY, M. S.

Journal of Applied Chemistry
March 1954
Fibres

The resistance of fabrics. M. S. Borodovsky (*Tekstil. Prom.*, 1951, 11, No. 12, 34–37; *Melliand Textilber.*, 1953, 34, 1055–1058).—The factors governing the lasting ability and fatigue of fabrics are discussed. H. L. WHITEHEAD.

BORODOVSKIY, M.S.

On the question of resistance of textile materials
Tekst. prom., no.2, 1952

Borodovskiy, M.S.

ANDREYEV, Aleksey Vasil'yevich; BERKOVICH, Nikolay Yul'yevich; LIOZNOV, A.G., NIKITIN, M.N., retsenzent; BORODOVSKIY, M.S., retsenzent; NEKRASOVA, O.I., tekhnicheskiy redaktor.

[Woolweaving; approved as textbook by the Technical education board in the Ministry of industrial consumer goods, for textile industry schools] Sherstotkachestvo. Odobreno Upravleniem uchebnymi zavedeniiami Ministerstva promyshlennykh tovarov shirokogo potrebleniia SSSR v kachestve uchebnika dlia tekstil'nykh tekhnikumov. Moskva, Gos. nauchno-tekhn. izd-vo Ministerstva promyshlennykh tovarov shirokogo potrebleniia SSSR, 1954. 395 p. (MIRA 8:1)
(Woolen and worsted manufacture)

BORODOVSKIY, M.S.

Possibilities of small-pattern interweave. Tekst.prom. 14 no.7: 35-36 Jl '54. (MLRA 7:8)

1. Dotsent Moskovskogo tekstil'nogo instituta.
(Textile fabrics)

BORODOVSKIY M.S.

ROZANOV, F.M.; BORODOVSKIY, M.S.; VASIL'CHENKO, V.N.; PAVLOVA, M.I.

Analytical method of computing the tension of a thread. Tekst.prom. 14 no.9:47-50 S '54. (MLRA 7:11)

1. Kafedra tkachestva Moskovskogo tekstil'nogo instituta. (for Rozanov, Borodovskiy, Vasil'chenko, Pavlova)
(Thread) (Strains and stresses)

BORODOVSKIY, M.S., kandidat tekhnicheskikh nauk.

Possibility of increasing the productivity of looms in accordance with the theory of yarn strength. Tekst.prom. 14 no.10: 23-29 O '54. (MLRA 7:10)
(Looms)

BORODOVSKIY, M.S. [deceased]

Modern warping machinery in France. Tekst.prom. 16 no.3:64 Mr '56. (France—Warping machines) (MLRA 9:6)

BORODOVSKIY, M.S. [deceased]

A French universal automatic machine for rewinding the weft. Tekst.prom. 16 no.4:61 Ap '56. (MLRA 9:7)
(France--Textile machinery)

BORODOVSKIY, M.S., [deceased].

Weft feeler for mechanical looms (from "L'industrie Textile," no. 819, 1955). Abstracyed by M.S. Borodovskii. Tekst.prom.16 no.12:61 D'56. (MLRA 10:1)

(France--Looms)

22(3) SOV/178-58-7-19/24

AUTHOR: Borodovskiy, N., Captain

TITLE: Using the Tape Recorder "Dnepr-3" for Training Radio Operators (Magnitofon "Dnepr-3" dlya obucheniya radistov)

PERIODICAL: Voyennyy svyazist, 1958, Nr 7, pp 42 - 44 (USSR)

ABSTRACT: The author suggests a modification of the tape recorder spool drive as shown in a detailed diagram. This drive permits a wide range of speed variations. For training radio operators, the training text is recorded to a speed of 60 signs per minute, if necessary with various noise. This text may be reproduced at speeds ranging from 30 to 110 signals per minute. The author states that such a drive, built by him, worked reliably for more than 1000 hours, and the same has been in use since 1954. There is 1 set of diagrams.

Card 1/1

MOROZOV, A. V.; TUGEYEV, K. S.; BORODOVSKIY, N. A.

Development of an electric charge in mouline yarns during rewinding on automatic reels. Tekst. prom. 23 no.3:42-45 Mr '63. (MIRA 16:4)

1. Sotrudniki kafedry fiziki Leningradskogo tekstil'nogo instituta (LTI) imeni S. M. Kirova.

(Winding machines) (Electrostatics)

BORODOVSKIY, N.A., starshiy prepodavatel'

Advantages of the compensation circuit in instruments for measuring static electricity. Tekst.prom. 25 no.11:85-87 N '65. (MIRA 18:12)

1. Kafedra fiziki Leningradskogo instituta tekstil'noy i legkoy promyshlennosti imeni Kirova.

BORODOVSKIY, O.K.

Humic substances in the deposits of the western part of the Bering Sea. Dokl. AN SSSR 113 no.1:157-160 Mr-Ap '57. (MLRA 10:6)

1. Institut nefti Akademii nauk SSSR. Predstavleno akademikom S.I. Mironovym.
(Bering Sea--Sedimentation and deposition) (Humus)

ALIYEV, M.M.; BORODOVSKIY, O.K.; RIKHTER, V.G.

Basic problems of a combined study of the Caspian Sea.
Izv.AN Azerb.SSR. Ser.geol.-geog.nauk no.2:3-9 '64.
(MIRA 18:11)

BORODOVSKIY, P.A.

"On the Problem of the Line of Pursuit for the Point of Constant and Variable Mass." [Author-Abstract of Cand. Diss., Odessa, 1956.]

BORODOVSKIY, P. A.

AUTHOR: Borodovskiy, P. A. 57-1o-21/33

TITLE: On the Application of Harmonic Vibrations of Electrons for Generation of Superhigh Frequencies (O primenenii garmonicheskikh kolebaniy elektronov dlya generatsii sverkhvysokikh chastot)

PERIODICAL: Zhurnal Tekhn. Fiz., 1957, Vol. 27, Nr 1o, pp. 2353-2355 (USSR)

ABSTRACT: Here are given in short the investigation results of an experimental type of an oscillator valve in which the conditions for the generation of harmonic vibrarions of electrons and the possibility of using these vibrations for the generation of high frequencies are relized. ( These conditions and possibilities were investigated by Ya. Fogel' and Braude S. in ZhETF, 1946, Vol. 16, 187). The formula for the vibration frequency f of the electrons is derived, from which it appears that it can change either by the variation of the accelerated voltage $V_a$ or by such one of the potential of the refelcting electrode $-V_R$. The measurements of the frequency of the vibrations generated by the valve show that the amount of the frequency corresponds to that of the vibration frequency of electrons determined by this formula (for f). At $V_R$ = -5o V a variation of the accelerating voltage of from 15o to 1ooo V causes a frequency alteration of from 31o to 6oo mc. A variation of the voltage at the reflecting electrodes of from

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On the Application of Harmonic Vibrations of Electrons for Generation of Superhigh Frequencies. 57-1o-21/33

-1o to -14o V at $V_a$ = 5oo V causes a frequency variation of from 4o8 to 54o mc. From the obtained curves appears a good conformity of the experimental data with those of the calculation. There are 3 figures and 1 Slavic reference.

ASSOCIATION: Institute for Radiophysics and Electronics. West Siberian Branch of the AN USSR (Institut radiofiziki i elektroniki, Zapadno-sibirskiy filial AN SSSR, Novosibirsk)

SUBMITTED: March 7, 1957

AVAILABLE: Library of Congress

Card 2/2

BORODOVSKIY, P.A.; VOKHMYANIN, N.V.

Oscillator tube with multiple retardation. Izv. Sib. otd. AN SSSR no.10:135-137 '58. (MIRA 11:12)

1.Zapadno-Sibirskiy filial AN SSSR.
(Oscillators, Electron-tube)

BORODOVSKIY, P.A.

Using harmonic electron oscillations for the generation of superhigh frequencies. Izv. TPI 95:347-353 '58. (MIRA 14:9)

1. Predstavleno professorom doktorom fiz.-matem.nauk A.B.Sapozhnikovym.

(Oscillators, Electron-tube)

BORODOVSKIY, P.A.

"Phasochron" interaction of harmonically oscillating electrons with the field of a nonmoderated back wave. Izv.Sib.otd.AN SSSR no.11:3-10 '59. (MIRA 13:4)

1. Institut radiofiziki i elektroniki Sibirskogo otdeleniya AN SSSR.
(Electric waves)

31241
S/200/61/000/010/001/001
D223/D301

9.2580 (1040, 1159)

AUTHOR: Borodovskiy, P. A.

TITLE: Strophotronic generator of decimeter waves

PERIODICAL: Akademiya nauk USSR. Izvestiya. Sibirskoye otdeleniye, no. 10, 1961, 58-66

TEXT: The present paper gives the results of analysis of the strophotron by Alfven and Romell. This type has an accelerating electrode with positive potential and two reflecting electrodes having a zero or negative potential and producing in the tube an approximately hyperbolic electrical field. In the presence of a sufficiently strong magnetic field, the electrons emitted by the cathode begin to oscillate between reflecting electrodes and are displaced simultaneously parallel to the accelerating electrode and finally reaching the collector. Their oscillations produce an HF field between the electrodes such that the valve will produce oscillations with a frequency equal to the electron frequency. The

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Strophotronic generator of ...

approximate analysis of interaction between electrons with the HF field is given with simplifying assumptions: (I) The transverse magnetic field is large, such that other components may be neglected. (II) The HF field in the plane of the electrons' oscillation is uniform and its amplitude is much smaller than that of the constant electric field and (III) space charge and initial electrons speed is neglected. The analysis shows that maximum energy at the output is at $a n_e = 1$, where $a$ is the ratio of potentials of the constant field to the amplotide of HF voltage, and $n_e$ - the number of electron oscillations in the interacting space. The lower the potential of the reflecting electrodes, the greater will be the energy maximum. Analysis of the distortion of the assumed parabolic field showed that with the increase of non-linearity the optimum value of electron energy decreases. The experimental confirmation was made on the following model valve: Tantalum cathode 50 microns thick, of dimensions 5 x 0.5 mm, heater current 4-5 amp, produced emission current 5-10 amp. The copper reflectors were of dimensions 1 x 3 mm,

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Strophotronic generator of ...

and effective length 75 mm; the accelerating electrode is a Mo rod of 2 mm diameter. The collector is a Mo plate able to dissipate 2-3W by radiation. The valve has no closed oscillating circuit and output is connected by means of a cable of 75Ω impedance to the reflector through an 8 - 10 pF capacitor. The characteristics were measured for a magnetic field 1000 gaus, collector current of 2-2.5 m. amp and voltage 300V. Graphs show that maximum output energy is for the reflector potential $U_R$=0 and $U_R$=-100V and the accelerating electrode voltage -750V and 1000V respectively. Both maxima are almost the same, contrary to the theory, but this may be explained by non-linearity of the parabolic field. The frequency of oscillations is about 820 Mc/s. Experiments show that the oscillating circuit affects the magnitude of output energy, but the frequency is independent. The valve may work without a resonant circuit if a matched load is connected to the reflectors directly. It is possible that there is interaction between the oscillating electrons and the field of the travelling wave going along the line produced by

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Strophotronic generator of ...

the two reflecting electrodes. Alternatively, electronic flux may be treated as an "electronic resonator", tuned by variation of electron speed and the geometry of the electron beam. The author accepts the first assumption as leading to a simpler mathematical treatment. There are 5 figures and 8 references: 4 Soviet-bloc and 4 non-Soviet-bloc. The references to the English-language publications read as follows: H. Alfven, D. Romell. Proc. IRE, v. 42, no. 8, p. 1239 (1954); B. Agdur Ericsen Technics, vol. 13, no. 1, p. 3 (1957)

ASSOCIATION: Institut radiofiziki i elektroniki Sibirskogo Otdeleniya AN SSSR, Novosibirsk (Institute of Radiophysics and Electronics, Siberian Department, AS USSR, Novosibirsk)

SUBMITTED: February 3, 1961

Card 4/4

L 4423-66 EWT(l)/EWA(h) JM

ACC NR: AP5026711 SOURCE CODE: UR/0141/65/008/005/0955/0964

AUTHOR: Borodovskiy, P. A.; Buldygin, A. F. 41B

ORG: Institute of Semiconductor Physics, SO AN SSSR (Institut fiziki poluprovodnikov SO AN SSSR)

TITLE: Experimental study of a coaxial traveling-wave strophotron

SOURCE: IVUZ. Radiofizika, v. 8, no. 5, 1965, 955-964

TOPIC TAGS: electron beam, electronic amplifier, electron oscillation, traveling wave, traveling wave amplifier, traveling wave tube 45

ABSTRACT: Operation of a coaxial traveling-wave strophotron both as an oscillator and amplifier is described. A section of the experimental tube is shown in Fig. 1. The interelectrode distance is about 110 mm; with a magnetic field of 2500 gs and impressed voltage of 1500 v, there are approximately 40 oscillations of an electron traversing the working space. Oscillation occurs at a beam current greater than some critical value; below this value, amplification is obtained. In the oscillatory mode, changing the applied voltage from 900 to 1900 v resulted in a relatively small frequency change, from 1000 to 1200 Mc; maximum power output was about 0.8 w.

Card 1/2 UDC: 621.385.622

L 4423-66

ACC NR: AP5026711

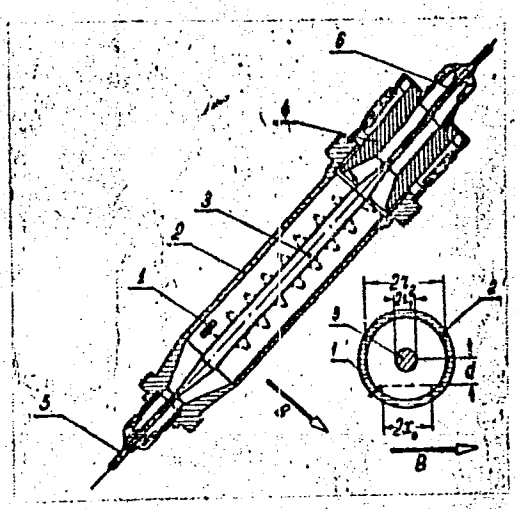


Fig. 1. Traveling-wave strophotron

1 - Cathode (tungsten); 2 - repeller (Cu); 3 - accelerator (Cu); 4 - collector; 5,6 - outputs.

Experimental and theoretical performance characteristics for various magnetic and electric field combinations are included. Orig. art. has: 9 figures and 6 formulas. [SH]

SUB CODE: EC/ SUBM DATE: 15Mar65/ ORIG REF: 001/ OTH REF: 002/ ATD Press: 4126

Card 2/2

L 5142-66 EWT(l)/EWT(m)/EWP(t)/EWP(b)/EWA(h) IJP(c) JD/JG/JM
ACCESSION NR: AP5026902 UR/0109/65/010/010/1829/1838
621.385.69

AUTHOR: Borodovskiy, P. A.; Buldygin, A. F. 15 B

TITLE: Investigation of a TW strophotron

SOURCE: Radiotekhnika i elektronika, v. 10, no. 10, 1965, 1829-1838

TOPIC TAGS: TW tube, strophotron

ABSTRACT: A theoretical and experimental study of a strophotron is reported. Fundamental equations that describe a strophotron oscillator are set up as a result of an approximate kinematic analysis. Formulas for the electronic power, efficiency, interaction-space length, etc. are developed. An experimental tube model (75 mm long, 3.6 mm diameter) had constantan reflectors, molybdenum accelerator and collector, and a molybdenum-wire transmission line with an output resistance of 180 ohm; emission current was 10—15 mamp. The tube was tested both as an oscillator and as an amplifier, with the electrons synchronized to the fundamental harmonic of the rf voltage across the reflectors. Starting current vs frequency, output power vs collector current and magnetic field, and output power and frequency vs accelerator-reflector voltage characteristics of the strophotron

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040065

L 5142-66

ACCESSION NR: AP5026902

oscillator were plotted, along with gain vs input-signal frequency, gain and bandwidth vs input-signal level, and gain vs collector current characteristics. The oscillation was always associated with a current in the reflector circuit. As an amplifier, the strophotron could operate thanks to a nonuniformity of the rf field along the x-axis, which existed when tower-amplitude electrons were in a stronger rf field than the increasing-amplitude electrons. Orig. art. has: 10 figures and 44 formulas. [03]

ASSOCIATION: none

SUBMITTED: 10Jul64 ENCL: 00 SUB CODE: EC

NO REF SOV: 004 OTHER: 001 ATD PRESS: 4134

Card 2/2

L 39540-66 EWT(1)/EWA(h) GD
ACC NR: AP6007643 SOURCE CODE: UR/0141/66/009/001/0209/0211

AUTHOR: Borodovskiy, P. A.; Buldygin, A. F.

ORG: Institute of Semiconductor Physics, SO AN SSSR (Institut fiziki poluprovodnikov SO AN SSSR)

TITLE: Experimental investigation of the interaction of electrons with the TW field in a strophotron

SOURCE: IVUZ. Radiofizika, v. 9, no. 1, 1966, 209-211

TOPIC TAGS: electron tube, strophotron

ABSTRACT: An experimental strophotron tube included a 0.15×3-mm thorium-tungsten cathode, a 0.5-mm constantan reflector, a 2-mm molybdenum accelerator, and a movable kovar collector whose position could be controlled by an external solenoid; the interaction-space length could be adjusted within 20—145 mm. These experimental characteristics are reported: relative collector current vs. interaction-space length; output power and frequency vs. accelerating voltage; starting current, gain, and passband vs. interaction-space length; gain vs. input-signal power. It is found that the TW strophotron gain strongly depends on the current, frequency, and the interaction-space length. "The authors wish to thank A. I. Shchekotov for building the experimental tube." Orig. art. has: 5 figures and 4 formulas. [03]

SUB CODE: 09 / SUBM DATE: 06Jul65 / ORIG REF: 003 / ATD PRESS: 4225

Card 1/1 vmb UDC: 621.385.622

BORODOVSKIY, V. K., KOLOVRAT-CHERVINSKIY, L. S. YAKOBSON, I. I.

Radioactivity

(From the history of early Russian studies of radioactivity.) Usp., fiz., nauk, 47, no. 1, 1952.

9. Monthly List of Russian Accessions, Library of Congress, November 1953, Uncl.

AUTHOR: Borodovskiy, Yu., Chief 27-58-7-17/27

TITLE: A Link with the Favorite Job (Svyaz' s lyubimym delom)

PERIODICAL: Professional'no-tekhnicheskoye obrazovaniye, 1958, Nr 7, p 26 (USSR)

ABSTRACT: The Khar'kov Cabinet of Methodical Training invited retired teachers and foremen of technical trade schools to place their valuable experience at the disposal of young trade school instructors. Since the response was very encouraging, a council of retired teachers was formed, which convenes twice a month for discussing pedagogical problems. It is intended to invite these former teachers to participate in the critical review of students' competitive essays.

ASSOCIATION: Khar'kovskaya oblast' uchebno-metodicheskiy kabinet (Khar'kov Oblast, Methodical-Training Cabinet)

1. Technical personnel--Training 2. Instructors--USSR

Card 1/1

BORODSKIY, I. B. (Editor) and BARINSKIY, R. L. (Translated by)

"Investigation of Radioactive Radiations by the Crystal-Diffraction Method: A Symposium of Articles", Moscow: Foreign Literature Publishing House, 1949, 280 pp.

BORODULA, V. A.; TAMARIN, A. I.; IODITSKIY, V. I.; ZABRODSKIY, S. S.

"Investigation of the hydrodynamics and of thermal diffusivity in fluidized systems."

paper submitted for 2nd All-Union Conf on Heat and Mass Transfer, Minsk, 4-12 May 1964.

Inst of Heat and Mass Transfer, AS BSSR, Minsk.

BORODULENKO, I.

Show initiative and peristence in deciding questions on industrial safety. Okhr. truda i sots. strakh. no.1:48-53 Jl '58.
(MIRA 11:12)

1.Zaveduyushchiy otdelom okhrany truda Vsesoyuznogo tsentral'nogo soveta profsoyuzov.
(Trade unions) (Industrial safety)

SIDOROCHKIN, S.S.; OSMINKIN, Ya.M.; CHURIN, V.N.; YUSHTIN, Ye.I.; YANKOVSKAYA, Z.V.; BORODULENKO, I.K., otv. red.; SMOLEV, B.V., red.; FRUMKIN, P.S., tekhn. red.

[Manual on safety engineering and industrial hygiene in four volumes]Spravochnik po tekhnike bezopasnosti i proizvodstvennoi sanitarii v chetyrekh tomakh. 2., perer. i dop. izd. Sost. S.S.Sidorochkin i dr. Otv. red. I.K.Borodulenko. Leningrad, Sudpromgiz. Vol.1. [General regulations]Obshchie polozheniia. 1962. 575 p. (MIRA 15:10)

(Industrial hygiene--Laws and legislation)
(Industrial safety--Laws and legislation)

SIDOROCHKIN, S.S.; OSMINKIN, Ya.M.; CHURIN, V.N.; YUSHTIN, Ye.I.; YANKOVSKAYA, Z.V.; BORODULENKO, I.K., otv. red.; SMOLEV, B.V., red.; KRYAKOVA, D.M., tekhn.red.

[Manual on safety engineering and industrial sanitation in four volumes] Spravochnik po tekhnike bezopasnosti i proizvodstvennoi sanitarii v chetyrekh tomakh. Izd.2., perer. i dop. Sost. S.S.Sidorochkin i dr. Otv. red. I.K.Borodulenko. Leningrad, Sudpromgiz. Vol.4. [Regulations, instructions, norms] Pravila, instruktsii, normy. 1963. 588 p. (MIRA 17:3)

BORODULIN, A.

Our experience. NTO 2 no.6:8-10 Je '60. (MIRA 14:2)

1. Glavnyy inzhener, predsedatel' soveta pervichnoy organizatsii Nauchno-tekhnicheskogo obshchestva Kuznetskogo metallurgicheskogo kombinata, g.Stalinsk.
(Kuznetsk Basin—Steelworks—Technological innovations)

BORODULIN, A.

Let us fulfill the taks of the seven-year plan with success.
NTO 2 no.12:37-38 D '60. (MIRA 14:3)

1. Glavnyy inzhener, predsedatel' soveta Nauchno-tekhnicheskogo obshchestva Kuzhetskogo metallurgicheskog kombinata.
(Russia--Economic policy)

SOV/108-13-7-9/14

AUTHOR: Borodulin, A.A.

TITLE: The Determination of the Phase Center of an Emitter by the Method of the Least Squares (Opredeleniye fazovogo tsentra izluchatelya po metodu naimen'shikh kvadratov)

PERIODICAL: Radiotekhnika, 1958, Vol. 13, Nr 7, pp. 67-70 (USSR)

ABSTRACT: By the method of the least squares rather simple and accurate formulae are derived here for the determination of the coordinates of the phase center of an emitter. - There are two basic methods of determining the phase center. In the case of the first method the distance between the probe (acting as phase indicator) and the emitter is varied. The task to be solved consists in finding the peripheral center with the least deviation from the obtained points of the phase current. In the case of the second method the distance between probe and emitter can not be varied. Here that point is taken as phase center at which the ideal point emitter must be located (for the purpose of obtaining phases of the field generated by it, which show the smallest degree of deviation in the peripheral points from the measured phases). - Neither of the two problems has as yet been dealt

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with in published works. The solution of the two problems is given here in form of approximation formulae which are sufficiently simple for laboratory use besides being of sufficient accuracy. The only source of errors in both methods of calculation is the inaccuracy of the formula (2). The maximum errors for each coordinate can be found. If it should turn out that such errors are not permissible, the phase center obtained must be assumed to be one of time, and the same measurements and calculations must be repeated. Such a case, however, very rarely occurs in practice. There are 1 figure, and 4 references, 3 of which are Soviet.

SUBMITTED: July 28, 1956 (initially) and December 30, 1957 (after revision)

Card 2/2

KOGARKO, S.M., doktor tekhn.nauk; BORODULIN, A.A.; BOKHON, Yu.A.; KOMAROV, V.N.; LYAMIN, A.G.; MIKHAYLOV, V.A.; SVISTUNOV, V.G.

Propagation of the chemical reaction zone in acetylene in large diameter pipes. Khim.prom. no.7:496-501 Jl '62. (MIRA 15:9)

1. Institut khimicheskoy fiziki AN SSSR i Gosudarstvennyy institut po proyektirovaniyu zavodov kauchukovoy promyshlennosti.
(Acetylene) (Gas pipes) (Combustion)

AEROV, M.E.; BOYARCHUK, P.G.; SVISTUNOV, V.G.; BERLIN, L.F.;
BORODULIN, A.A.

Hydraulic study of two-downcomer rectification plates. Khim.
i tekh. topl. i masel 8 no.5:47-51 My '63. (MIRA 16:8)

BORODULIN, A.I.

BARDIN,I.P.;BORISOV,A.F.; BELAN,R.V.; YERMOLAYEV,G.I.; VAYSBERG,L.E.; ZHEREBIN,B.N.; BORODULIN,A.I.; SHAROV,G.V.; DOMNITSKIY,I.F.; CHUSOV,F.P. SOROKO,L.N.; KLIMASENKO,L.S.; PAVLOVSKIY,S.I.; ZIL'BERSHTEYN,M.B.; LYULENKOV,I.S.; NIKULINSKIY,I.D.; BRAGINSKIY,I.A.; SALOV,Ye.M.; TROSHIN,N.F.; PETRIKEYEV,V.I.; ARGUNOV,M.I.; DUL'NEV,F.S.; BIDULYA,L.N. GAYNANOV,S.A.; FROLOV,N.P.; VINICHENKO,V.S.; KOGAN,Ye.A.

G.E.Kazarnovskii; obituary. Stal' 15 no.8:757 Ag'55. (MLRA 8:11)
(Kazarnovskii, Grigorii Efimovich, 1887-1955)

Rational method of preliminary deoxidation of steel. N. I. Shirokov, B. G. Petukhov, and A. [illegible] Borodulin (Met. Combine, Kuznetsk). *Stal'* 16, No. 5, 418-27(1956).—Rail and 0.20% C steels were deoxidized in 190- and 380-ton open hearth furnaces with ferromanganese alone, with FeMn assocd. with preliminary slag deoxidation with coke breeze and slagging off, and with FeMn in combination with blast-furnace ferrosilicon, after which they all were finished in the same manner. The effect of these practices on slag and metal compn.; on C and H content, on quality and kind of nonmetallic inclusions, on mech. properties of steel, rail yield, and economic aspects is closely examd. Deoxidation with FeMn alone was found best by cutting deoxidation time by 18 min., improving yield and mech. properties of steel, and lowering costs. Coke-breeze treatment did not improve Mn recovery. I. D. Gal

3

1. Sibirskiy metallurgicheskiy zavod i Kuznetskiy Metallurgicheskiy Kombinat. (open-hearth process)

BORODULIN, A.I.; MIKHAYLETS, N.S.

Kuznetsk steel smelters are lowering the consumption of ferroalloys. Metallurg no.8:20-21 Ag '56. (MLRA 9:10)

1.Zamestitel' glavnogo inzhenera Staleplavil'noy laboratorii Kuznetskogo metallurgicheskogo kombinata (for Borodulin).2.Starshiy inzhener Staleplavil'noy laboratorii Kuznetskogo metallurgicheskogo kombinata. (Stalinsk--Smelting) (Iron alloys)

BORODULIN, A.I.

130-7-8/24

AUTHOR: Borodulin, A.I. (Engineer)

TITLE: Melting Killed Carbon Steel without Preliminary Deoxidation in the Furnace (Vyplavka spokoynoy uglerodistoy stali bez predvaritel'nogo raskisleniya v pechi)

PERIODICAL: Metallurg, 1957, Nr 7, pp.16 - 17 (USSR)

ABSTRACT: Since January 1956 all high-carbon steels, including rail steel, have been tapped without preliminary deoxidation with blast-furnace ferrosilicon in the furnace. This was preceded by extensive trials and these and their results as well as the economics of the new procedure are discussed in the present article. The trials were carried out in conjunction with the Siberian metallurgical institute in basic 190 and 380 ton open-hearth furnaces fired with mixed gas. Extensive information on the procedure, quantities of materials and the composition and mechanical properties of two types of rails for the trials in the larger furnace is tabulated for the old and new procedures. In discussing these and results of analyses of later heats the author gives special attention to manganese loss and also deals with the behaviour of silicon, phosphorus and sulphur. The quality of metal produced by the new method is superior and great economies have resulted from the lower consumption of ferroalloy; the tap-to-tap time has decreased on

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130-7-8/24

Melting Killed Carbon Steel without Preliminary Deoxidation in the Furnace.

the average by 13 minutes; blast furnace capacity has been released for the production. There are 2 tables.

ASSOCIATION: Kuznetsk metallurgical combine (Kuznetskiy Metallurgicheskiy Kombinat)

AVAILABLE: Library of Congress.

Card 2/2

137-58-6-11693

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 6, p 68 (USSR)

AUTHOR: Borodulin, A.I.

TITLE: The Smelting of Killed Carbon Steel Without Prior Deoxidation in the Furnace (Vyplavka spokoynoy uglerodistoy stali bez predvaritel'nogo raskisleniya metalla v pechi)

PERIODICAL: Tr. Nauchno-tekhn. o-va chernoy metallurgii, 1957, Vol 18, pp 437-441

ABSTRACT: Bibliographic entry. Ref. RzhMet, 1958. Nr 2, abstract 2430

1. Steel--Processing

Card 1/1

KOROLEV, A.I.; BLINOV, S.T.; LUBENETS, I.A.; KOBURNEYEV, I.M.; TURUBINER, A.L.; VASIL'YEV, S.V.; CHERNENKO, M.A.; BELOV, I.V.; TELESOV, S.A.; MAZOV, V.F.; MEDVEDEV, V.A.; MAL'KOV, V.G.; BUL'SKIY, M.T.; TRUBETSKOV, K.M.; SHUMYAKOV, Ya.A.; SLADKOSHTEYEV, V.T.; PALANT, V.I.; KUROCHKIN, B.N.; ZHDANOV, A.M.; BELIKOV, K.N.; SABIYEV, M.P.; GAMBUZ, G.A.; PODGORETSKIY, A.A.; ALFEROV, K.S.; NOVOLODSKIY, P.I.; MOROZOV, A.N.; VASIL'YEV, A.N.; MARAKHOVSKIY, I.S.; MALAKH, A.V.; VERKHOVTSEV, E.V.; AGAPOV, V.F.; VECHER, N.A.; PASTUKHOV, A.I.; BORODULIN, A.I.; VAYNSHTEYN, O.Ya.; ZHIGULIN, V.I.; DIKSHTEYN, Ye.I.; KLIMASENKO, L.S.; KOTIN, A.S.; MOLOTKOV, N.A.; SIVERSKIY, M.V.; ZHIDETSKIY, D.P.; MIKHAYLETS, N.S.; SLEPKANEV, P.N.; ZAVODCHIKOV, N.G.; GUDEMCHUK, V.A.; NAZAROV, P.M.; SAVOS'KIN, M.Ye.; NIKOLAYEV, A.S.

Reports (brief annotations). Biul. TSNIICHM no.18/19:36-39 '57. (MIRA 11:4)

1. Magnitogorskiy metallurgicheskiy kombinat (for Korolev, Belikov, Agapov, Dikshteyn). 2. Kuznetskiy metallurgicheskiy kombinat (for Blinov, Vasil'yev, A.N., Borodulin, Klimasenko). 3. Chelyabinskiy metallurgicheskiy zavod (for Lubenets, Vaynshteyn). 4. Zavod im. Dzherzhinskogo (for Koburneyev). 5. Zavod "Zaporozhstal'" (for Turubiner, Mazov, Podgoretskiy, Marakhovskiy, Savos'kin). 6. Makeyevskiy metallurgicheskiy zavod (for Vasil'yev, S.V., Mal'kov, Zhidetskiy, Al'ferov). 7. Stal'proyekt (for Chernenko, Zhdanov, Zavodchikov). 8. VNIIT (for Belov). 9. Stalinskiy metallurgicheskiy zavod (for Telesov, Malakh).

(Continued on next card)

KOROLEV, A.I.---(continued) Card 2.

10. Nizhne-Tagil'skiy metallurgicheskiy kombinat (for Medvedev, Novolodskiy, Vecher). 11. Zavod "Azovstal'" (for Bul'skiy, Slepkanev). 12. TSentral'nyy nauchno-issledovatel'skiy institit chernoy metallurgii (for Trubetskov). 13. Ukrainskiy institut metallov (for Shneyerov, Sladkoshteyev, Kotin). 14. Zavod "Krasnyy Oktyabr'" (for Palant). 15. Vsesoyuznyy nauchno-issledovatel'skiy institut metallurgicheskoy teplotekhniki (for Kurochkin). 16. Zavod im. Voroshilova (for Sabiyev). 17. Chelyabinskiy politekhnicheskiy institut (for Morozov). 18. Giprostal' (for Garbuz). 19. Ural'skiy institut chernykh metallov (for Pastukhov). 20. Zavod im. Petrovskogo (for Zhigulin). 21. Ministerstvo chernoy metallurgii USSR (for Molotkov, Siverskiy). 22. Glavspetsstal' Ministerstva chernoy metallurgii SSSR (for Nikolayev).
(Open-hearth process)

SOV/137-58-9-18577

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 9, p 57 (USSR)

AUTHORS: Mikhaylets, N.O., Borodulin, A.I., Klimasenko, L.S.

TITLE: Different Modes of Employment of Manganese in Open-hearth Smelting (Ispol'zovaniye v martenovskoy plavke margantsa pri razlichnykh yego rezhimakh)

PERIODICAL: V sb.: Staleplavil'n. proiz-vo. Moscow, Metallurgizdat, 1958, pp 44-62

ABSTRACT: Variations in the Mn regimen in the course of open-hearth smelting consist in a reduction in Mn content in the charge during smelting of low-Mn cast iron (LMCI) and elimination of a procedure whereby Fe-Mn is added to the melt at the time of the boil period. The employment of LMCI, the smelting of which significantly increases the production figures of blast-furnace smelting, lowers the production costs of steel, but results in an increase in the consumption of Fe-Mn employed for deoxidation. This condition can be alleviated provided no Mn is added to the melt during the smelting process. The various regimens of employment of the Mn were evaluated in terms of the Mn balance in the course of smelting of various types of

Different Modes of Employment of Manganese in Open-hearth Smelting

steel. When LMCI (0.4% Mn) is utilized in smelting of rimmed steels, the Mn content is considerably lower in the charge, and only slightly lower in the metal (after melting and prior to reduction) than corresponding Mn contents encountered in processing of common cast iron containing 0.7-2.0% Mn (additions of Fe-Mn were omitted in the course of smelting in both instances); the increase in the consumption of Fe-Mn for purposes of reduction is relatively small (0.8 kg/t). Introduction of Fe-Mn in the capacity of a reductant into the ladle rather than into the furnace results in a significant economy of the reductant, the final cost of one ton of steel being 4.35% lower than the cost of steel manufactured with the aid of standard cast iron in conjunction with deoxidation in the furnace. In addition to the change-over to LMCI, the process of smelting of rail steel was also changed by omitting the addition of Fe-Mn to the melt in the course of smelting; the results of both these measures are evaluated separately. Since, after melting and drawing off of slag, the Mn content is somewhat reduced during processing of the LMCI, the consumption of Fe-Mn added in the course of the ore-boil period is necessarily increased. However, the economy on Mn additions in the course of smelting of the LMCI in blast furnaces more than covers the additional consumption of the Fe-Mn in the open-hearth furnace. As a result, the total consumption of Fe-Mn during the ore-boil period in smelting operations employing LMCI

Different Modes of Employment of Manganese in Open-hearth Smelting

without Fe-Mn addition is identical to the consumption of Fe-Mn in smelting operations involving standard cast iron and Fe-Mn addition. Taking into account the summary effect of the employment of the LMCl, the total reduction in the cost of production of one ton of rail steel amounts to 3.43%.

L.K.

1. Cast iron--Processing 2. Manganese--Reduction 3. Manganese--Applications
4. Open hearth furnaces--Performance

SMOLYARENKO, Daniil Abramovich; YEFANOV, Nikolay Ivanovich; MASLOVSKIY, P.M., retsenzent; BORODULIN, A.I., retsenzent; GONCHAROV, G.I., retsenzent; SPIRIN, N.I., retsenzent; KOROLEV, M.N., nauchnyy red.; ZINGER, S.L., red.izd-va; KARASEV, A.I., tekhn.red.

[Large-capacity open-hearth furnace plants] Martenovskie tsekhi s pechami bol'shoi emkosti. Izd.2., perer. i dop. Moskva, Gos. nauchno-tekhn.izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1960. 356 p. (MIRA 13:9)
(Open-hearth furnaces--Design and construction)

BORODULIN, A.I.

Steel founders are waiting for help. Izobr.i rats. no.9:6 S '60.
(MIRA 13:10)

1. Glavnyy inzhener Kuznetskogo metallurgicheskogo kombinata.
(Steel--Metallurgy) (Thermometry)

s/[illegible]/000/003/011/191
[illegible]

AUTHORS: Bogdanov[illegible], Borod[illegible]n, A[illegible]

TITLE: The use [illegible]ctive isotope[illegible] [illegible]rgical Combin[illegible]

PERIODICAL: Referati[illegible]y zhurnal, Metallurgiya, no. 3, 1962, 7, abstract 3V45 (V sb. "[illegible]. izotopy i yadern. izlucheniya v nar. kh-ve SSSR", v. 3 [illegible], Gostoptekhizdat, 1961, 126-129)

TEXT: At [illegible] Kuznetsk Metallurgical Combine radioactive isotopes have been used from 1951 in blast-furnace, steelmelting, rolling, and coke practice for the manufacture of refractories and sinters and for chemical analysis of steel. To operate with radioactive isotopes, the following three groups were organized: radioactive investigation methods; radioelectronics and gamma flaw detection; then the operational plan is set up. In the case of a full metallurgical cycle with mining and sintering-concentration shops at the KMK, radioactive isotopes can be widely used as marked atoms to investigate metallurgical processes and as radiation sources for the control and automation of production processes, and also for the purpose of flaw detection. The technical and economical effect

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of operation with radioactive isotopes appears in an improved production technology and quality of the products; reduced waste; higher efficiency of various metallurgical units; the development of new more effective, accurate and cheaper methods of steel analysis; production and equipment control, and automation of production processes. The results of the operation with isotopes, carried out at the Combine, have been introduced into practice, or are being assimilated at the present. The planned work may yield high technical and economical results. The control and automation of production processes is particularly promising. For instance, the automatic dosing of refractory charges and elimination of dosage rejects, developed in 1960, may yield one million rubles yearly savings in merely one refractory shop department.

K. Ursova

[Abstracter's note: Complete translation]

BORODULIN, A.I., inzh.; LEVIN, M.G., inzh.

Air preheaters made of heat-resistant concrete blocks. Stal' 21 no. 1:17-19 Ja '61 (MIRA 14:1)

1. Kuznetskiy metallurgicheskiy kombinat i Soyuzteplostroy. (Air preheaters)

39748
S/148/62/000/006/001/005
E071/E435

11500

AUTHORS: Vishnyakov, A.V., Danilov, P.M., Meteleva, G.G., Borodulin, A.I., Tkachev, I.S., Plekhanov, P.S.

TITLE: Casting of 7 ton ingots of killed steels with closed shrinkage cavity

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Chernaya metallurgiya, no.6, 1962, 32-38

TEXT: The possibility of teeming 7 ton ingots with a closed shrinkage cavity which is sufficiently clean as regards non-metallic inclusions and segregations to become welded together on rolling was demonstrated. For insulating the closed shrinkage cavity from air, a skin of 3 to 5 mm thick would be sufficient but for the fact that on reheating the ingot such thin skin can melt and, therefore, the thickness of an insulating layer of 20 to 100 mm is desirable. The principle of the method is to form a bridge in the shrinkage cavity soon after teeming. This bridge will divide the shrinkage cavity into closed and open parts. The closed part will

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weld together during rolling so that only the open part of the cavity has to be cut off. Altogether five modifications of teeming practice were tested (described in some detail and illustrated). Depending on the teeming practice, the size of the cut off end varied from 3 to 7%. Subsequent testing of the vertical cross-section of an ingot with closed shrinkage cavity for the segregation of carbon, phosphorus and sulphur showed that the degree of segregation was small and did not exceed the degree of segregation encountered in normal ingots. There are 4 figures.

ASSOCIATION: Sibirskiy metallurgicheskiy institut i Kuznetskiy metallurgicheskiy kombinat (Siberian Metallurgical Institute and Kuznetsk Metallurgical Combine)

SUBMITTED: May 20, 1961

VISHNYAKOV, A.V.; BORODULIN, A.I.; DANILOV, P.M.; METELEVA, G.G.; TKACHEV, I.S.; PLEKHANOV, P.S.

Quality of the fusion of closed shrinkage cavities in killed steel ingots. Stal' 22 no.12:1118-1120 D '62. (MIRA 15:12)

1. Sibirskiy metallurgicheskiy institut i Kuznetskiy metallurgicheskiy kombinat.
(Steel ingots--Defects) (Rolling (Metalwork))

VISHNYAKOV, A.V.; DANILOV, P.M.; METELEVA, G.G.; BORODULIN, A.I.; TKACHEV, I.S.; PLEKHANOV, P.S.

Fusion of closed shrinkage cavities in killed steel ingots. Izv. vys. ucheb. zav.; chern. met. 5 no.8:44-52 '62. (MIRA 15:9)

1. Sibirskiy metallurgicheskiy institut i Kuznetskiy metallurgicheskiy kombinat.

(Steel ingots—Defects)

BORODULIN, A.I.

Cherepovets metallurgical plant is 10 years old. Stal' 25 no.8:673-675 Ag '65. (MIRA 18:8)

1. Direktor Cherepovetskogo metallurgicheskogo zavoda.

L 00557-66 EWT(m)/EWA(d)/EWP(t)/EWP(k)/EWP(z)/EWP(b)/EWA(c) IJP(c)
JD/HW

ACCESSION NR: AP5019944 UR/0133/65/000/008/0706/0707
669.18-412 : 621.746.753

AUTHORS: Borodulin, A. I.; Smolyarenko, D. A.; Sivtsov, G. V.; Chizhova, V. Ya.

TITLE: Improving the quality of metal for cold-rolled sheet metal

SOURCE: Stal', no. 8, 1965, 706-707

TOPIC TAGS: sheet steel, steel pouring, steel foundry, deep drawing steel

ABSTRACT: Some of the reasons why Cherepovets steel is superior to others for deep-drawing are discussed. The factory uses ore containing 62% Fe (to be raised to 63% in 1965) and coke containing to 0.55% S (compared with normal 1.6-1.8%) to obtain only 0.018% S in the cast iron (to be lowered to 0.015-0.017%). Fuel consumption (natural gas) in 1964 was 136 kg/ton. C content in medium and large capacity furnaces is taken as 0.35-0.80 and 0.25-0.70% respectively, while cast iron consumption (containing 0.40% Si, 0.25% Mn) is 55-58%. The steel produced for deep-drawing corresponds to stricter limitations on chemical composition (imposed within the factory) than those established by GOST specifications (primarily, smaller % of Si, P, and S). Since the heating of the ingredients was found to be a major factor in steel quality, the following order is used: agglomerate is uniformly loaded on the fettlings and covered with lime. The charge is heated 7-10 minutes and scrap is

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loaded at 3 tons/min to speed the melting. Since the S content remains essentially constant through the melting operation (small amounts only are removed in slag), the charge must consist of materials containing little S. The Mn/S ratio has to be substantially above 12 (around 20-30). The metal temperature is kept at 1530-1600C while the slag temperature should not drop below 1580C. Speed pouring through 60-70 mm spouts (12 tons/min) results in 1.45% increased yield of class I metal compared with normal pouring through 30 mm spout (2.5 t/min). I. M. Konovalov, E. V. Tkachenko, K. I. Zhurkin (Cherepovets); V. N. Gasilina, K. A. Kapustin (TsNIIChM) participated in the work. Orig. art. has: 1 figure and 1 table.

ASSOCIATION: Cherepovetskiy metallurgicheskiy zavod (Cherepovets Metallurgical Factory); TsNIIChM

SUBMITTED: 00 ENCL: 00 SUB CODE: MM

NO REF SOV: 000 OTHER: 000

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ARMENSKIY, Ye.V.; BORODULIN, A.I.; RYBIN, V.M.; SMIRNOV, V.N.

Measuring the average energy of electrons of a low-energy linear accelerator. Izm. tekh. no.11:44-45 N '65. (MIRA 18:12)

BORODULIN, B., frezerovshchik

Good initiative. Obshchestv.pit. no.10:53 O '60. (MIRA 13:11)

1. Mashinostroitel'nyy zavod, Leningrad i obshchestvennyy kontroler tresta stolovykh Kalininskogo rayona g Leningrada.
(Leningrad--Restaurants, lunchrooms, etc.)

BORODULIN, B.M., inzh.

Use of longitudinal capacitative compensation in a.c. electric traction. Trudy TSNII MPS no.201:17-38 '60. (MIRA 14:3)
(Electric railroads—Substations)
(Electric power distribution)

AFANAS'YEVA, Yekaterina Yakovlevna; GERONIMUS, Boris Yefimovich; LAPIN, Vladimir Borisovich; MILOVIDOV, Leonid Grigor'yevich; Prinimal uchastiye BORODULIN, B.M.; SOKOLOV, S.D., kand. tekhn. nauk, retsenzent; USENKO, L.A., tekhn. red.

[Systems and operation of a.c. traction substations] Ustroistvo i ekspluatatsiia tiagovykh podstantsii peremennogo toka. [By] E.IA.Afanas'eva i dr. Moskva, Vses. izdatel'sko-poligr. ob"edinenie M-va putei soobshcheniia, 1962. 237 p. (MIRA 15:4)

(Electric railroads—Substations)

KARYAKIN, R.N.; BORODULIN, E.M., inzh.

Resistance of a.c.traction networks. Vest.TSNII MPS 21 no.4:10-14 '62. (MIRA 15:6)

(Electric railroads—Current supply)

BORODULIN, B.M., inzh.; PAVLOV, I.V., kand.tekhn.nauk

Longitudinal capacitive compensation in a traction network with bleeder transformers. Trudy TSNII MPS no.256:97-108 '63. (MIRA 16:6)

(Electric railroads--Wires and wiring)
(Electric railroads--Current supply)

BORODULIN, B.M., inzh.

Voltage regulation of three-phase traction transformers. Trudy TSNII MPS no.256:5-12 '63. (MIRA 16:6)
(Electric railroads—Current supply)

BORODULIN, B.M., inzh.

Efficient distribution of reactive kva compensation systems in a.c. traction networks. Vest. TSNII MPS 23 no.5:8-11 '64. (MIRA 17:11)

BORODULIN, F.A.

Nemtsov, N.P., Borodulin, F.A.
Veterinarians

Atoxyl in emaciation of horses

Source: Veterinariya; 22; 4-5; April/May 1945

BORODULIN, F.R.

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MEDICINE

BORODULIN, G.I.

Simplified method of checking the closeness of a sliver for a wool-carding machine. Tekst.prom. 16 no.6:58-59 Je '56. (MLRA 9:8)

1. Tekhnolog Noginskogo kardo-lentnogo zavoda.
(Wool-carding)

S/006/61/000/011/001/002
D054/D113

AUTHOR: Borodulin, G. I.

TITLE: Field testing of the DST-2 geodimeter

PERIODICAL: Geodeziya i kartografiya, no. 11, 1961, 24-29

TEXT: The ДСТ-2 (DST-2) geodimeter was field-tested by the Vsesoyuznyy nauchno-issledovatel'skiy marksheyderskiy institut (All-Union Scientific Research Institute of Mine Surveying) in summer 1960, to see if it could be used for surface surveying operations. The Kerr cell is used as light modulator and demodulator, the non-ambiguity of measured distances being achieved by smoothly altering the modulation frequency. In contrast to the СВВ-1 (SVV-1) range-finder, the operating frequencies are fixed according to the scale of the generator which was previously calibrated by the manufacturer. A conversion table gives frequencies corresponding to any given reading from the above-mentioned scale. The device has two standard quartz resonators which allow the operating frequency to be more accurately found and the scale of the main generator to be periodically calibrated. The moment of coincidence of the frequencies of the generator and the resonators is determined by an electronic optical indicator. The feeding and generator blocks and the optical system are placed in the body of the transmitter-receiver.

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Field testing of the DST-2 geodimeter

A 60 v current is fed from the storage batteries. The field tests were made on local triangulation. Twenty-seven triangulation and polygonometrical lines were measured and the results were compared with those obtained by triangulation (Table 2). To estimate the measurement accuracy, the following errors were calculated: The mean weight error of measuring the line with one reception - according to internal convergence $\mu_{int}$ and deviations from the true weight $\mu_{true}$; the mean square error of the result after several receptions according to the internal convergence $M^n_{int}$ and deviations from the actual result $M^n_{true}$. The calculation of errors according to internal convergence was made according to the formulas:

$$\mu_{int} = \pm \sqrt{\frac{\left[\left(\sqrt{P}\, M_{int}\right)^2\right]}{K}}, \text{ and } M^n_{int} = \frac{\mu_{int}}{\sqrt{n}},$$

where $M_{int}$ - errors of separate lines of observations, P - weights of separate lines equal to the number of receptions, and K - the number of lines.

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The value of $\mu_{int}$ was 34.8 cm. As a systematic error was found, $M^{n}_{true}$ was calculated by another method. The line measurements were grouped according to the number of receptions, for which the error of results was to be found. If the error of measurements in 15 receptions were to be found, then all lines with n = 15 receptions were chosen from table 2 and a mean value of each line was calculated. The difference in the mean results and the result obtained by triangulation, represented the actual observation error. The mean square error $M^{15}_{true}$ was then calculated. It was found that $\mu_{true}$ equalled 37.3 cm. The calculation results are represented graphically by the $M^{n}_{int}$ and $M^{n}_{true}$ curves on the graph (Fig. 2). It can be seen from this graph that there is a systematic error in the measurements, and that measurements with the DST-2 device do not become more accurate when more than 12--15 receptions are made. The range of the a/m device is up to 5,000 m by night, up to 4,000 m in twilight, up to 1,800 m on an overcast day and 800 m on a sunny day. It is concluded that the DST-2 device can only be used for surface surveying operations when high accuracy is not demanded. There are 3 tables and 2 figures.

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